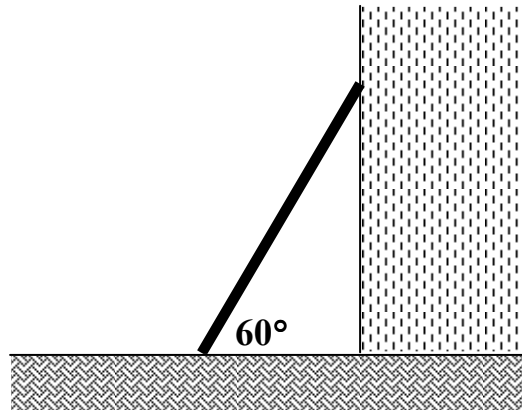
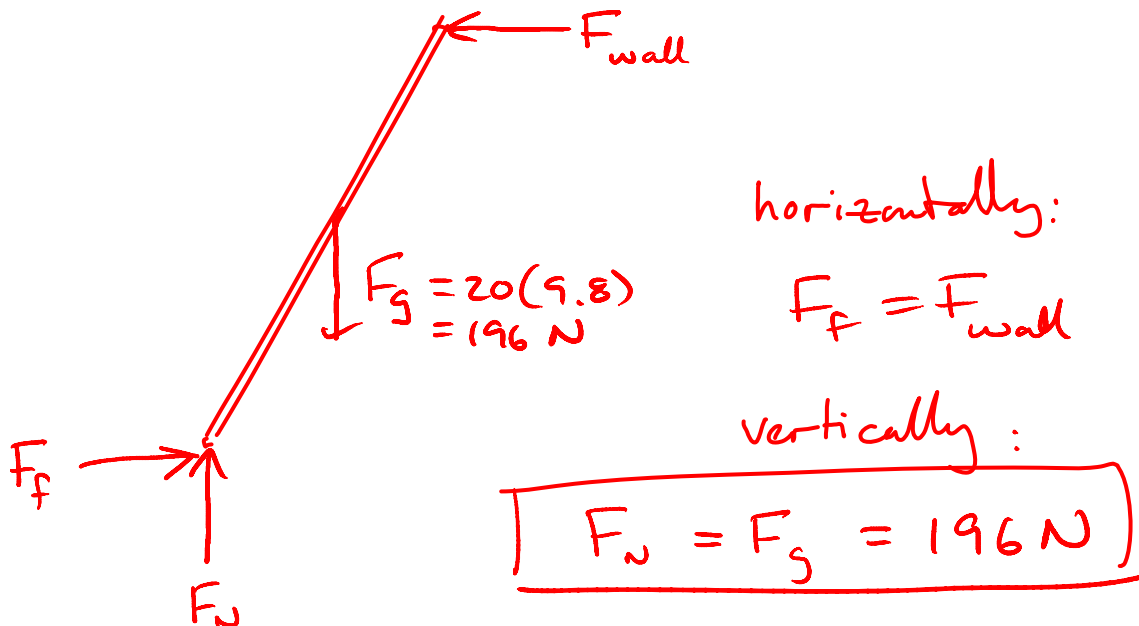


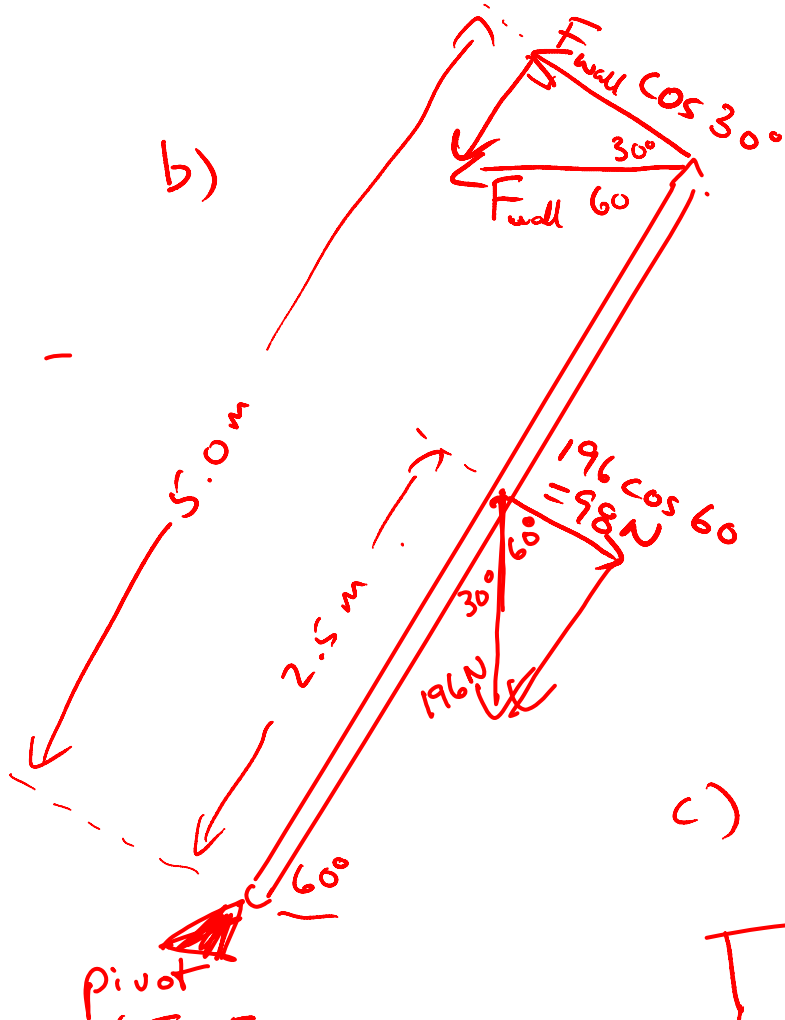
Example #18. A uniform 20.0 kg, 5.00 m-long ladder leans against a smooth (frictionless) wall as shown. Find:

- a) the normal force of the floor pushing up against the ladder;
- b) the normal force of the wall pushing against the ladder;
- c) the friction force between the ladder and the floor;
- d) the overall force that the floor exerts on the ladder.



a) \rightarrow examine all forces on ladder:





$$T_{\text{cw}} = T_{\text{ccw}}$$

$$98(2.5) = F_{\text{wall}} \cos 30^\circ(5)$$

$$F_{\text{wall}} = 57 \text{ N}$$

c) → from forces diagram in a),

$$F_{\text{wall}} = F_f = 57 \text{ N}$$

d) at bottom of ladder:

